WHAT IS CLAIMED IS:

1. A method for manufacturing a semiconductor device, comprising:

providing a first layer;

forming a plurality of isolation regions in the first layer;

forming an insulating layer over the first layer;

forming a second layer over the insulating layer;

implanting one of helium, neon, krypton or xenon ions into the second layer;

implanting boron ions into the second layer;

patterning and etching the implanted second layer and the insulating layer;

annealing at least the layer of implanted second layer to activate the implanted boron ions; and

forming source and drain regions in the first layer.

2. The method of claim 1, wherein the first layer comprises a substrate.

3. The method of claim 1, wherein the insulating layer comprises a gate oxide layer.

4. The method of claim 1, wherein the dosage of one of helium, neon, krypton or xenon ions is higher than 10^{13} ions per cm^2.

5. The method of claim 1, wherein the step of implanting one of helium, neon, krypton or xenon ions is performed at energy of less than 100 KeV.

6. The method of claim 1, wherein the second layer comprises one of silicon, gallium, or a combination thereof.

7. The method of claim 1, wherein the plurality of isolation regions are formed by using a local oxidation of silicon process.

8. The method of claim 1, wherein the plurality of isolation regions are formed by using a shallow trench isolation process.

9. The method of claim 1, wherein the dosage of the boron ions is at least 10^{13} ions per cm^2.

10. The method of claim 1, wherein the step of implanting the boron ions is performed at energy of less than approximately 80 KeV.

11. A method for suppressing boron penetration of a gate oxide during the manufacture of an integrated circuit, comprising:

providing a substrate;

forming a plurality of isolation regions;

forming a layer of gate oxide over the substrate;

depositing a layer of silicon material over the layer of gate oxide;

implanting boron ions into the silicon material layer to form an implanted silicon layer;

implanting one of helium, neon, krypton or xenon ions into the implanted silicon layer to create a strain between particles of the silicon layer and implanted helium, neon, krypton or xenon ions;

patterning the implanted silicon layer and the layer of gate oxide;

activating the implanted boron ions; and

forming source and drain regions in the substrate.

12. The method of claim 11, wherein the dosage of helium, neon, krypton or xenon ions is higher than 10^{13} ions per cm^2.

13. The method of claim 11, wherein the plurality of isolation regions are formed by using a local oxidation of silicon process.

14. The method of claim 11, wherein the plurality of isolation regions are formed by using a shallow trench isolation process.

15. The method of claim 11, wherein the step of implanting one of helium, neon, krypton or xenon ions is performed at energy of less than 100 KeV.

16. The method of claim 11, wherein the dosage of the boron ions is at least 10^{13} ions per cm^2.

17. The method of claim 11, wherein the step of implanting the boron ions is performed at energy of less than approximately 80 KeV.

18. A method for manufacturing a semiconductor device, comprising:

providing a substrate;

forming a plurality of isolation regions;

forming a layer of gate oxide over the substrate;

forming a layer of semiconducting material over the layer of gate oxide;

implanting boron ions into the layer of semiconducting material;

creating a barrier in the layer of semiconducting material to prevent implanted boron ions from diffusing into the substrate;

patterning and etching the implanted silicon layer and the layer of gate oxide;

annealing at least the layer of semiconducting material; and

forming source and drain regions in the substrate.

19. The method of claim 18, wherein the step of creating a barrier in the layer of semiconducting material comprises implanting one of helium, neon, krypton or xenon ions into the layer of semiconducting material.

20. The method of claim 18, wherein the dosage of one of helium, neon, krypton or xenon ions is higher than 10^{13} ions per cm^2.

21. The method of claim 18, wherein the step of implanting one of helium, neon, krypton or xenon ions is performed at energy of less than 100 KeV.

22. The method of claim 18, wherein the layer of semiconducting material comprises one of silicon, gallium, or a combination thereof.

23. The method of claim 18, wherein the dosage of the boron ions is at least 10^{13} ions per cm^2.

24. The method of claim 18, wherein the step of implanting the boron ions is performed at energy of less than approximately 80 KeV.